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1: Am J Hypertens. 1991 Feb;4(2 Pt 2):207S-209S. Related Articles, Links

Isradipine, a calcium antagonist, in the control of hypertension following coronary artery-bypass surgery.

Lawrence CJ, Lestrade A, de Lange S.

Department of Anesthesiology, University Hospital of Maastricht, The Netherlands.

Arterial hypertension is common after coronary artery-bypass grafting (CABG) surgery and may lead to postoperative complications. Therefore, the effects of the calcium antagonist isradipine were studied in 10 postoperative CABG patients who had a mean arterial pressure (MAP) above 100 mm Hg. Isradipine, given as a continuous infusion, reduced MAP to the range of 85 +/- 5 mm Hg in all patients within 15 min. Systemic vascular resistance fell and cardiac output increased in all patients. A slight increase in heart rate was seen in some, but not all, patients. There were no adverse effects. In conclusion, isradipine appears to be a useful agent in the treatment of postoperative hypertension following CABG surgery.

Publication Types:
- Clinical Trial

PMID: 1827024 [PubMed - indexed for MEDLINE]

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Angioplasty

From Wikipedia, the free encyclopedia

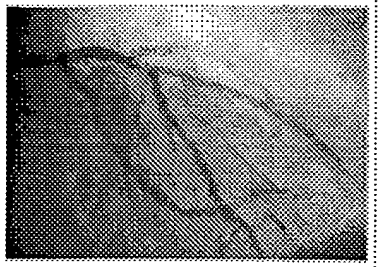
Angioplasty is the mechanical alteration of a narrowed or totally obstructed vascular lumen, generally caused by atheroma (the lesion of atherosclerosis). The term derives from the roots "Angio" or vessel and "plasticos" fit for molding. The term has come to include all manner of vascular interventions typically performed in a minimally invasive or **percutaneous** method.

Most commonly, the Seldinger technique is used to cannulate a blood vessel for access. A guiding catheter is introduced into the arterial (or venous) system and advanced through the system to the location of an obstruction. This in turn is followed by introduction of a guidewire which is advanced though the guide catheter, through the obstruction and extended into the blood vessel lumen beyond the obstruction. Over the guidewire, a balloon catheter is advanced through both the guide catheter and the obstruction. Once in position, the balloon is inflated using high hydraulic pressure so as to force the narrowed vessel lumen to expand, pushing the lesion producing the narrowing outwards. The balloon may also include a stent (compressed over the balloon before expansion) or be followed by a stent/balloon combination so that the expanded stent is left within the previously narrowed lumen to mechanically support patency of the vessel lumen.

Contents

Coronary angioplasty

One way to unblock (open up the lumen) a **coronary** artery (or other blood vessel) is **percutaneous transluminal coronary angioplasty** (PTCA), which was first performed in 1977. A wire is passed from the femoral artery in the leg (most commonly) or the radial artery in the arm up to the diseased **coronary** artery, to beyond the area of the **coronary** artery that is being worked upon. Over this wire, a balloon catheter is passed into the segment that is to be opened up. The end of the catheter contains a small folded balloon. When the balloon is hydraulically inflated, it compresses the atheromatous plaque and stretches the artery wall to expand. At the same time, if an expandable wire mesh tube (stent) was on the balloon, then the stent will be implanted (left behind) to support the new stretched open position of the artery from the inside.



X-ray image during **Angioplasty**

Angioplasty and stenting is performed through a thin flexible catheter during Cardiac Catheterization with just a local anaesthetic to the groin (or wrist) where the catheter was inserted, often making heart surgery unnecessary. While **coronary angioplasty** has consistently been shown to reduce symptoms due to **coronary** artery disease and to reduce cardiac ischemia, it has not been shown in large trials to reduce mortality due to **coronary** artery disease, except in patients being treated for a heart attack acutely (also called primary **angioplasty**). There is a small but definite mortality benefit (ie., reduction) with this form of treatment compared with medical therapy, usually consisting of thrombolytic ("clot busting") medication.

Traditional ("bare metal") **coronary** stents provide a mechanical framework that holds the artery wall open, preventing stenosis, or narrowing, of arteries feeding critical structures like the myocardium. Traditional stenting is superior to **angioplasty** alone in keeping arteries open.

Newer drug-eluting stents (DES) are coated with drugs that prevent re-stenosis of the artery. Three drugs, sirolimus, everolimus and paclitaxel, have been demonstrated effective and safe in this application by stent device manufacturers and are being used.

Risks of **angioplasty** are uncommon, and the procedure is widely practiced. **Coronary angioplasty** is usually performed by an interventional cardiologist, a medical doctor with special training in the treatment of the heart using invasive catheter-based procedures.

Angioplasty is sometimes referred to as *Dottering*, after Dr C.T. Dotter, who, together with Dr M.P. Judkins, first described (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14226164&dopt=Abstract) **angioplasty** (without the balloon) in 1964 (Circulation 1964;30:654-70). As the range of procedures performed upon lumens of **coronary** arteries has widened, the name of the procedure has changed to **percutaneous coronary** intervention (PCI).

Risks of angioplasty

Angioplasty has become considerably safer over the years and is now commonly performed. Although it is associated with some risks[1] these are considerably less than for open-heart bypass surgery with its resulting post-operative pain. However the likelihood of recurrence of angina, and requirement for repeated procedures has been higher with **angioplasty**. The latest trial (ARTS II) has suggested that PCI with DES may be superior, at least in the short term.

Some chest discomfort occasionally may be experienced and it is for this reason that the patient is awake during minimally invasive **angioplasty**; the reporting of any symptom allows the cardiologist to take necessary immediate action. Bleeding from the insertion point in the groin is common, in part due to the use of anti-platelet clotting drugs. Some bruising is therefore to be expected, but occasionally a haematoma may form. This may delay hospital discharge as flow from the artery into the haematoma may continue (pseudoaneurysm) which requires repair. Infection at the skin puncture site is rare and dissection (tearing) of the access blood vessel is uncommon. Allergic reaction to the contrast dye used is possible, but has been reduced with the newer agents. Deterioration of kidney function can occur in patients with pre-existing kidney disease, but kidney failure requiring dialysis is rare. Vascular access complications are less common and less serious when the procedure is performed via the radial artery.

In the long term, the most common risk is of the stent restenosis, as discussed above. This has been reduced considerably with the use of newer stents coated with certain medicines (drug-eluting stents). The most serious risk is the rare provocation (3%) of a heart attack during or shortly after the procedure; this may require emergency open cardiac surgery. **Angioplasty** carried out shortly after a myocardial infarction has a risk of causing a stroke of 1 in 1000, which is less than the 1 in 100 risk encountered by those receiving thrombolytic drug therapy.

The overall risks of death with **angioplasty** is approximately 1%, but the underlying severity of the heart disease, fitness of the patient and presence of other illness affect each individual's risk. Hence for those with relatively minor heart disease, preserved good cardiac function, reasonable level of fitness and absence of other illnesses, the risk will be considerably less than this.

When failures of PTCA occur, they are often treated using **coronary** artery bypass grafting (CABG).

Peripheral angioplasty

Peripheral **angioplasty** refers to the use of similar techniques in opening blood vessels other than the **coronary** arteries. It is often called **percutaneous transluminal angioplasty** or **PTA** for short. PTA is most commonly done to treat narrowings in the leg arteries, especially the common iliac, external iliac, superficial femoral and popliteal arteries. PTA can also be done to treat narrowings in veins.

Renal artery angioplasty

Atherosclerotic obstruction of the renal artery can be treated with **angioplasty** of the renal artery (**percutaneous transluminal** renal **angioplasty**, PTRA). Renal artery stenosis can lead to **hypertension** and loss of renal function.

Carotid angioplasty

Generally, carotid artery stenosis is still not treated with **angioplasty** and stenting in most hospitals, due to the increased risk of embolic stroke with the procedure. But this is changing since the FDA has approved the first cartoid stent system (Guidant) in August 2004 and the second (Abbott) in September 2005. The system usually comprises a stent along with an anti-embolic device designed to reduce or trap atheroma and clot debris. **Angioplasty** and stenting is increasingly being used to also treat carotid stenosis, with success rates similar to carotid endarterectomy surgery. Simple **angioplasty** without stenting is falling out of favor in this vascular bed. A large trial comparing endarterectomy and stenting found stenting equally efficacious [2].

See also

- Andreas Gruentzig
- **Coronary** artery bypass surgery
- Cardiac Catheterization

References

1. ^ UK's NHS endorsed 'Best Treatments' advice on 'clinical evidence for patients from the BMJ' on **Coronary angioplasty** (http://www.besttreatments.co.uk/btuk/electsurgery/18627.html) and its risks (http://www.besttreatments.co.uk/btuk/electsurgery/18627.html#What%20are%20the%20risks%20of%20coronary%20angioplasty?)
2. ^ Yadav JS, Wholey MH, Kuntz RE, Fayad P, Katzen BT, Mishkel GJ, Bajwa TK, Whitlow P, Strickman NE, Jaff MR, Popma JJ, Snead DB, Cutlip DE, Firth BG, Ouriel K. *Protected carotid-artery stenting versus endarterectomy in high-risk patients.* N Engl J Med 2004;351:1493-501. PMID 15470212 (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=15470212).

External links

- **Angioplasty**. Org (http://www.angioplasty.org/)
- Cardiovascular and Interventional Radiological Society of Europe (http://www.cirse.org/index.php?pid=85)
- Society for Cardiovascular Angiography and Interventions (http://www.scai.org/)
- Cardiovillage (http://www.cardiovillage.com/)
- Various **Coronary** Stents from (http://www.smtpl.com/) Sahajanand Medical Technologies, a **Coronary** Stent Manufacturer

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Categories: Cardiology | Radiology | Surgery | Surgical procedures

Note: Performing your original search, ***percutaneous transluminal coronary angioplasty hypertension***, in PubMed will retrieve ***539*** citations.

1: Am J Cardiol. 1989 Feb 15;63(7):409-13. Related Articles, Links

Repeat percutaneous transluminal coronary angioplasty and predictors of recurrent restenosis.

Quigley PJ, Hlatky MA, Hinohara T, Rendall DS, Perez JA, Phillips HR, Califf RM, Stack RS.

Department of Medicine, Duke University Medical Center, Durham, North Carolina 27710.

One hundred seventeen consecutive patients undergoing repeat percutaneous transluminal coronary angioplasty (PTCA) were studied to assess procedural success and recurrent restenosis rates. Clinical, anatomic and procedural variables were examined as predictors of recurrent restenosis using stepwise logistic regression analysis. Primary success was achieved in 114 patients (97.5%). One patient (0.8%) died after acute occlusion. No other in-hospital complications were encountered. After a mean follow-up interval of 218 +/- 160 days, 72 of 114 successfully dilated patients (63%) remained angina free. There were no late deaths. Three patients (2.6%) experienced a late myocardial infarction. Follow-up arteriography was performed in 100 patients (88%), of whom 32% had recurrent restenosis (greater than 50% luminal diameter narrowing). On univariate analysis, the presence of 3 clinical variables at repeat PTCA was associated with significantly higher recurrent restenosis rates compared with their absence, that is, unstable angina (48 vs 20%, p = 0.003), diabetes (61 vs 26%, p = 0.003) and hypertension (46 vs 18%, p = 0.003). Patients with recurrent restenosis had a shorter interval between first and second PTCA compared with those who remained patent (136 +/- 116 vs 214 +/- 163 days, p = 0.018). Multivariate analysis confirmed unstable angina, diabetes and hypertension as independent predictors of recurrent restenosis. Repeat PTCA may be performed for restenosis with a high likelihood of success and low incidence of complications. The rate of recurrent restenosis is similar to that reported for initial angioplasty. Patients with unstable angina, diabetes and hypertension appear to be at higher risk for recurrent restenosis.

PMID: 2521766 [PubMed - indexed for MEDLINE]

Aug 14 2006 08:07:58

Note: Performing your original search, ***percutaneous transluminal coronary angioplasty hypertension***, in PubMed will retrieve 539 citations.

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1: Zhonghua Yi Xue Za Zhi (Taipei). 1999 Oct;62(10):733-7. Related Articles, Links

Percutaneous transluminal coronary angioplasty for renovascular hypertension in a child: a case report.

Lee CS, Hwang B, Lee PC, Fu YC, Hsing HP, Lu JH, Meng CC.

Department of Pediatrics, Taipei Veterans General Hospital, Taiwan, ROC.

Since its introduction, percutaneous transluminal coronary angioplasty has become an alternative therapeutic modality to surgical and medical treatment for renovascular hypertension. We report the case of a nine-year-old boy who had hypertension caused by renal arterial stenosis. The patient's high blood pressure was 164/100 mmHg, which was discovered incidentally during a physical check-up. A selective renal angiography showed a severe short-segment stenosis with post-stenotic dilatation of the left renal artery. A 4-mm balloon catheter was advanced through the stenotic area and was inflated five times to dilate the stenosis. After the procedure, the selective renal angiography showed a significant increase in the diameter of the left renal artery. Blood pressure decreased to normal immediately after the procedure. During the one-year follow-up period, the patient remained normotensive without the use of antihypertensive drugs.

Publication Types:
- Case Reports

PMID: 10533305 [PubMed - indexed for MEDLINE]

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